

Abstract

An efficient, high-quality interference analysis taking into consideration characteristics of adaptive antennas is made possible by a frequency planning device and, respectively, a method for interference analysis for a mobile radio network exhibiting an adaptive antenna in at least some of its cells (figure 4 BS_i) comprising traffic channels and control channels

- in which (figure 6) for the mobile radio network frequency allocation planning, in each case the interference ratio (C/I or $I_{i,j}$) of the interference (I) of the traffic channels (11;12 ... 18 in figure 3 and BS_i , BS_j in figure 6) of an adaptive antenna of a first cell (BS_j) with traffic channels of an adaptive antenna of a second cell (BS_i) is calculated as a sum of the interference probabilities ($Prob \{MS \text{ in beam } b\} \cdot Prob \{MS \text{ in beam } a\} \cdot I_{ib,jo}$) weighted with the traffic values of the individual part-cells, of the interferences of in each case one traffic channel of the adaptive antenna of the first cell with a user signal of in each case one traffic channel of the adaptive antenna of the second cell,

- in which (figure 5) the interference ratio (I_{ij}) of the interference of a traffic channel of a first cell (BS_j), without adaptive antenna with traffic channels of a second cell (BS_i) with an adaptive antenna is calculated as the sum of the interference probabilities ($Prob \{MS \text{ in beam } b\} \cdot I_{ib,t}$), weighted with the traffic values

of the individual part cells, of the interferences of a traffic channel of the first cell (BSj) with in each case one traffic channel (19, 20, 21) of the adaptive antenna of the second cell (BSi),

- in which (figure 7) the interference ratio of the interference of a control channel of a first cell (BSi) with or without adaptive antenna with a control channel of a second cell (BSj) with or without adaptive antenna referred to the total cell area is calculated from the user signal/interference signal ratio ($(I_{j,t})_{tb}$) of these control channels in the total cell area in each case without taking into consideration any adaptive antennas of one or both of these cells (BSj , BSi).